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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,842	10/14/2003	Tony Cruz-Uribe	200311559-1	8443

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EXAMINER
LIANG, LEONARD S

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/685,842	**Applicant(s)** CRUZ-URIBE ET AL.	
	Examiner Leonard S. Liang	**Art Unit** 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _28 October 2005_.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-68_ is/are pending in the application.
  4a) Of the above claim(s) _18-68_ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-17_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _14 October 2003_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _10/14/03, 03/01/05_.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

In the response to election/restriction filed on 10/28/05, the applicant has elected claims 1-17. Therefore, claims 1-17 will herein be examined and all other claims will be withdrawn.

Information Disclosure Statement

The information disclosure statement filed 03/01/05 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "330" has been used to designate two different things in figures 5A-D. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- Paragraph 0032 discloses step 430 as "catching" tail of previously formed quantity of fluid even though figure 4 discloses step 430 as moving fluid dispenser
- Paragraph 0044 labels both a leading edge and trailing portion as reference 832

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidle et al (US Pat 4686539).

Schmidle et al discloses:

- {claim 1} A method for dispensing a single ligament of fluid with an inkjet dispenser comprising: ejecting a first quantity of the fluid from the inkjet dispenser toward a substrate; and ejecting a second quantity of the fluid from the inkjet dispenser toward the substrate; wherein the second quantity of fluid is ejected from the inkjet dispenser at a frequency sufficient that the first quantity of the fluid and the second quantity of the fluid form a single ligament of the fluid prior to contacting the substrate (figure 11-12; abstract)

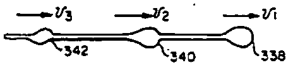

FIG. 11

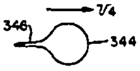

FIG. 12

- {claim 2} further comprising reining in a necking phenomena of the fluid (column 1, line 44-column 2, line 10)
- {claim 15} A method for dispensing a single ligament of fluid from a thermal inkjet dispenser comprising: ejecting a first quantity of the fluid having a head and a tail from the thermal inkjet dispenser toward a substrate; and ejecting a second quantity of the fluid having at least a head from the thermal inkjet dispenser toward the substrate; wherein the second quantity of fluid is ejected from the thermal inkjet dispenser at a frequency that the head of the second quantity of fluid catches the tail of the first quantity of fluid prior to contacting the substrate, thereby forming a single ligament of the fluid (figure 11-12; abstract)
- {claim 16} further comprising choosing the fluid to have a viscosity above two centipoise at an opening temperature of the inkjet dispenser (column 7, lines 23-30)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidle et al (US Pat 4686539) in view of Bagchi et al (US Pat 5916358).

Schmidle et al discloses:

- {claims 3-6 and 17} a method (as applied to claims 1 and 15 above)
- {claim 5} wherein the inkjet dispenser is disposed in an inkjet printer configured to form two-dimensional characters (inherent to invention)
- {claim 6} wherein the fluid comprises ink (abstract)

Schmidle et al differs from the claimed invention in that it does not disclose:

- {claim 3} wherein the reining in a necking phenomena comprises increasing a viscosity of the fluid
- {claim 4} wherein the reining in a necking phenomena comprises decreasing a surface tension of the fluid
- {claim 17} further comprising choosing the fluid to have a surface tension below 30 dyne/centimeter

Bagchi et al discloses:

- {claim 3} wherein the reining in a necking phenomena comprises increasing a viscosity of the fluid (column 13, lines 46-49 discloses "When the rate at which the ink is drawn from the nozzle exceeds the viscosity limited rate of ink flow through the nozzle, the ink in the region of the nozzle tip 'necks', and the selected drop separates from the body of ink." This implies that by increasing viscosity, the necking phenomena can be reined in.)

- {claim 4} wherein the reining in a necking phenomena comprises decreasing a surface tension of the fluid (column 1, lines 13-18)
- {claim 17} further comprising choosing the fluid to have a surface tension below 30 dyne/centimeter (column 43, line 44)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Bagchi et al into the invention of Schmidle et al. The motivation for the skilled artisan in doing so is to gain the benefit of using a low cost ink (column 3, lines 12-13).

Claims 7-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidle et al (US Pat 4686539) in view of Speakman (US Pat 6503831).

Schmidle et al discloses:

- {claims 7-14} a method (as applied to claim 1 above)

Schmidle et al differs from the claimed invention in that it does not disclose:

- {claim 7} wherein the inkjet dispenser is disposed in a solid freeform fabrication apparatus
- {claim 8} wherein the fluid comprises an object build material
- {claim 9} wherein the fluid comprises an object support material

- {claim 10} wherein the inkjet dispenser is disposed in a circuit formation apparatus
- {claim 11} wherein the fluid comprises one of a conductive circuit build material, a semi-conductive build material, or a dielectric build material
- {claim 12} wherein the single ligament of fluid contacts the substrate to form a circuit component
- {claim 13} wherein the circuit component comprises one of a transistor, a trace, a capacitor, a resistor, an antenna, a display, or a radiofrequency identification tag
- {claim 14} wherein the fluid comprises an adhesive

Speakman discloses:

- {claim 7} wherein the inkjet dispenser is disposed in a solid freeform fabrication apparatus (abstract)
- {claim 8} wherein the fluid comprises an object build material (abstract)
- {claim 9} wherein the fluid comprises an object support material (abstract)
- {claim 10} wherein the inkjet dispenser is disposed in a circuit formation apparatus (column 1, lines 9-17)
- {claim 11} wherein the fluid comprises one of a conductive circuit build material, a semi-conductive build material, or a dielectric build material (column 1-2)
- {claim 12} wherein the single ligament of fluid contacts the substrate to form a circuit component (column 1, lines 9-17)

- {claim 13} wherein the circuit component comprises one of a transistor, a trace, a capacitor, a resistor, an antenna, a display, or a radiofrequency identification tag (column 13, lines 25-26)
- {claim 14} wherein the fluid comprises an adhesive (column 30, lines 51-56)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the invention of Speakman into the invention of Schmidle et al. The motivation for the skilled artisan in doing so is to gain the benefit of being able to form different electronic devices using ink jet technology (abstract).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hosono et al (US Pat 6151050) discloses an ink jet recording apparatus for adjusting time constant of expansion/contraction of piezoelectric element.

Sanders, Jr. et al. (US Pat 5506607) discloses a 3-D model maker.

Sanders, Jr. et al. (US Pat 5740051) discloses 3-D model making.

Wen (US Pat 6193361) discloses an apparatus for forming textured layers over images.

Akahira et al (US Pat 6224205) discloses a color-filter manufacturing method and apparatus, color filter, display device, and apparatus having display device.

Silverbrook (US Pat 6820967) discloses a thermal ink jet printhead with heaters formed from low atomic number elements.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S. Liang whose telephone number is (571) 272-2148. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MANISH S. SHAH
PRIMARY EXAMINER